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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,676

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Patrik Holm

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EXAMINER

HAVLIN, ROBERT H

ART UNIT

PAPER NUMBER

1626

MAIL DATE

DELIVERY MODE

08/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,676	Applicant(s) HOLM, PATRIK	
	Examiner ROBERT HAVLIN	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13, 14 and 28-40 is/are pending in the application.
- 4a) Of the above claim(s) 3, 8, 9, 11, 13, 14 and 28-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-7 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

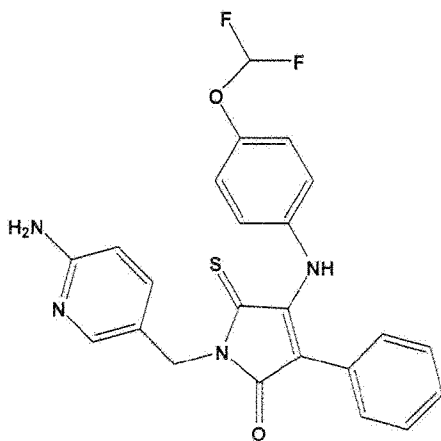
Status of the claims: Claims 1-11, 13, 14, and 28-40 are currently pending. Claims 1, 2, 4, and 7 were amended. Claims 12 and 42 were cancelled.

Priority: This application is a 371 of PCT/SE04/01115 (07/08/2004) and claims foreign priority to UNITED KINGDOM 0316237.7 (07/11/2003).

Election/Restrictions

1. Applicant's election without traverse of group I (claims 1-10, 12) in the reply filed on 11/28/07 was previously acknowledged.

Applicant also elected the following species:



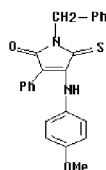
As detailed below, the generic claim was not found patentable, therefore the scope of the claims were restricted to the elected species. Thus, subject matter in claims 1, 2, 4-7, 9, 10 not reading on the elected species is withdrawn and the remaining claims are withdrawn as a whole.

RESPONSE TO APPLICANT ARGUMENTS

Claim Rejections - 35 USC § 103

2. Claims 1, 2, 4-7, 10, 12, and 42 were rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/21927 ("Coughlan") in view of Patani (Chem. Rev., 1996, Vol. 96, No. 8, P. 3147-3176).

Applicant argues that Patani is not pertinent to the patentability of the pending claims because the claims compounds do not possess a mobile proton. Patani teaches on page 3151 that the basis for the isosterism as: "This replacement is based on the ability of both these functional groups to be *hydrogen bond acceptors or donors*." In the



instant case both the cited compound's () sulfur atom and the prior art oxygen atoms act as hydrogen bond acceptors as Patani requires, therefore the fact that Patani provides an example with a mobile proton is inconsequential and the teachings remain pertinent. Therefore the bioisosterism of X taught in the following figure 7 and 9 of Patani:

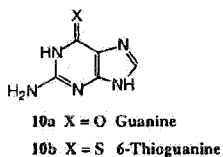


Figure 7.

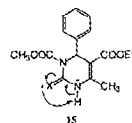


Figure 9.

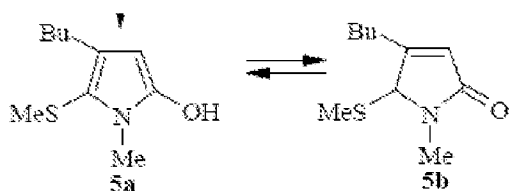
Table 7. Calcium Channel Blocking Activity of 1,4-Dihydropyrimidines

compound	X	van der Waals radius ²¹ (Å)	IC ₅₀ (nM) ²⁴
15a	≡O	1.40	140
15b	≡NH	1.50	180
15c	≡S	1.85	17

is entirely relevant to the instant application.

Even if one were to accept the assertion that the tautermization is important, tautomeric/isomeric forms exist for the claimed compounds that conforms to applicant's

argument as shown by Brandsma et al. (Chemistry of Heterocyclic Compounds, Vol. 37, No. 3, 2001, p 364, *cited only to show the state of the*



art): and generally Chadwick (Chem. Of

Heterocyclic compounds (1990), 48(pyrroles, pt. 1), p 1-103, *cited only to show the state of the art*), for example on pages 82-85. Although the tautomer is on the oxygen, from a chemical standpoint the situation is equivalent when it is on the sulfur.

Furthermore, S and O are isoelectronic, having the same available bonding electrons, therefore they predictably provide similar properties when interchanged in molecules.

Finally, the reference teaches structurally similar compounds that are useful as pharmaceutical agents in the same manner as those claimed. Structural similarities are appropriate in supporting obviousness, for example, in *In re Merck & Co.*, claims to amitriptyline used as an antidepressant were held obvious in light of the structural similarity to imipramine, a known antidepressant prior art compound, where both compounds were tricyclic dibenzo compounds and differed structurally only in the replacement of the unsaturated carbon atom in the center ring of amitriptyline with a nitrogen atom in imipramine. *In re Merck & Co.*, 800 F.2d 1091, 1096-97, 231 USPQ 375, 378-79 (Fed. Cir. 1986). Other structural similarities have been found to support a prima facie case of obviousness. See, e.g., *In re May*, 574 F.2d 1082, 1093-95, 197 USPQ 601, 610-11 (CCPA 1978) (stereoisomers); *In re Wilder*, 563 F.2d 457, 460, 195 USPQ 426, 429 (CCPA 1977) (adjacent homologs and structural isomers); *In re Hoch*,

428 F.2d 1341, 1344, 166 USPQ 406, 409 (CCPA 1970) (acid and ethyl ester); In re Druey, 319 F.2d 237, 240, 138 USPQ 39, 41 (CCPA 1963) (omission of methyl group from pyrazole ring).

Therefore, because the teachings of Patani are relevant and the compounds have significant structural similarities and are used for the same purpose the claims remain obvious over the prior art.

This conclusion is further supported by the MPEP:

MPEP 2144.09: A prima facie case of obviousness may be made when chemical compounds have very close structural similarities and similar utilities. "An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties." In re Payne, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA 1979) (Claimed and prior art compounds were both directed to heterocyclic carbamoyloximino compounds having pesticidal activity. The only structural difference between the claimed and prior art compounds was that the ring structures of the claimed compounds had two carbon atoms between two sulfur atoms whereas the prior art ring structures had either one or three carbon atoms between two sulfur atoms. The court held that although the prior art compounds were not true homologs or isomers of the claimed compounds, the similarity between the chemical structures and properties is sufficiently close that one of ordinary skill in the art would have been motivated to make the claimed compounds in searching for new pesticides.). See In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (discussed in more detail below) and In re Dillon, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991).

Claim Rejections - 35 USC § 112

3. Claims 1-5, 12, and 42 were rejected under 35 USC 112 1st paragraph as failing to comply with the written description requirement. Based on applicant's amendment of the scope of the claims, this rejection is withdrawn.

Double Patenting

Claims 1, 2, 4-7, 9, 10, 12, and 42 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9, 11, and 12 of copending Application No. 10/564,235. As discussed above applicant's unpersuasive arguments regarding the non-obviousness of the claims equally applies to this rejection. Therefore this rejection is maintained.

Claim Objections

Claims 1, 2, 4-7, 9, 10 continue to be objected to for reading on non-elected subject matter.

Conclusion

4. No claim is in condition for allowance. **THIS ACTION IS MADE FINAL.**

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HAVLIN whose telephone number is (571)272-9066. The examiner can normally be reached on Mon. - Fri., 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor, Joe McKane can be reached at (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Havlin/
Robert Havlin, Ph.D.
Examiner
Art Unit 1626

/Kamal A Saeed, Ph.D./
Primary Examiner, Art Unit 1626